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1: Cancer Res. 2006 Feb 15;66(4):1949-55.

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Identification of the IFITM family as a new molecular marker in human colorectal tumors.

Andreu P, Colnot S, Godard C, Laurent-Puig P, Lamarque D, Kahn A, Perret C, Romagnolo B.

Institut Cochin, INSERM U567, Centre National de la Recherche Scientifique UMR8104, Université Paris V, France.

We analyzed the expression profiles of intestinal adenomas from a new murine familial adenomatous polyposis model (Apc(delta14/+)) using suppression subtractive hybridization to identify novel diagnostic markers of colorectal carcinogenesis. We identified 18 candidate genes having increased expression levels in the adenoma. Subsequent Northern blotting, real-time reverse transcription-PCR, and in situ hybridization analysis confirmed their induction in beta-catenin-activated epithelial cells of murine adenomas. We showed that most of the genes also have altered expression levels in human colonic adenomas and carcinomas. We focused on the IFITM genes that encode IFN-inducible transmembrane proteins. Serial analyses of gene expression levels revealed high levels of expression in early and late intestinal neoplasm in both mice and humans. Using a conditional mouse model of Apc inactivation and a human colon carcinoma cell line, we showed that IFITM gene expression is rapidly induced after activation of the beta-catenin signaling. Using a large-scale analysis of human tumors, we showed that IFITM gene expression is significantly up-regulated specifically in colorectal tumors and thus may be a useful diagnostic tool in these tumors.

PMID: 16488993 [PubMed - indexed for MEDLINE]

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